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What is claimed:

1. A point-of-use water treatment system for treating water, the system comprising:  
5 a base unit;  
a filter assembly mounted relative to the base unit, the filter assembly including a filter block and an inner sleeve disposed within the filter block, the inner sleeve defining a chamber therein;  
a water treatment device for treating water passing through the water treatment  
10 system, the water treatment device being disposed at least partially within the chamber of the inner sleeve; and  
a first valve disposed and controlling the flow of water between the water treatment device and at least one of the base unit and the filter assembly.
- 15 2. The point-of-use water treatment system of claim 1 further comprising:  
a second valve;  
wherein the first valve controls the flow of water between the filter assembly and the water treatment device and the second valve controls the flow water between the water treatment device and the base unit.
- 20 3. The point-of-use water treatment device of claim 1 further comprising:  
first and second seals sealing between the filter assembly and the water treatment device and between the water treatment device and the base unit.
- 25 4. The point-of-use water treatment system of claim 1 wherein:  
the water treatment device includes a lamp assembly for irradiating water passing through the water treatment device.
- 30 5. The point-of-use water treatment system of claim 1 wherein:  
the water treatment device is one of an ozone generator, a dispenser for mineral additives, an ion exchanger or a hollow fiber media.

6. The point-of-use water treatment system of claim 1 wherein:  
the filter assembly includes a first end cap which extends over a first end of the filter block; and

the inner sleeve includes an inner sleeve opening therein;

5 wherein at least a portion of the first valve is disposed between the first end cap and the inner sleeve and controls the flow of water such that the water must pass through filter block and then between the first end cap and the inner sleeve before exiting the filter assembly through the inner sleeve opening and entering into the chamber.

10 7. The point-of-use water treatment system of claim 6 wherein:

the water treatment device cooperates with the filter assembly to keep the first valve open when the water treatment device is installed within the filter assembly; and

15 the first valve closes when the filter assembly is removed relative to the water treatment device thereby preventing water from exiting through the first valve.

8. The point-of-use water treatment system of claim 7 wherein:

the first valve includes a check ball and the water treatment device includes a dislocating pin;

20 wherein the mounting of the filter assembly with the water treatment device operates to keep the first valve open.

9. The point-of-use water treatment device of claim 6 wherein:

25 the filter assembly includes an outer filter housing and a base portion having an inlet valve therein, the base portion and filter housing at least partially cooperating to form a generally closed pressure vessel about the filter block;

wherein the first valve and the inlet valve cooperate to prevent water from escaping from the filter assembly when the filter assembly is removed from the base unit.

10. The point-of-use water treatment device of claim 1 wherein:  
the filter assembly and the water treatment device are releasably mounted to the base unit and the filter assembly must be released from the base unit before the water treatment device may be released.

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11. A filter assembly for filtering a fluid in a fluid treatment system having a secondary fluid treatment device, the filter assembly comprising:  
an inner sleeve defining a chamber therewithin configured to receive the secondary fluid treatment device at least partially within the chamber, the inner sleeve  
10 having an outlet opening therein;

a filter block surrounding the inner sleeve;

a first end cap disposed about one end of the filter block; and

an outlet valve disposed between the first end cap and the inner sleeve to control the flow of fluid through the outlet opening;

15 wherein fluid may pass through the filter block and exit the filter assembly by passing through the outlet opening and into the chamber.

12. The filter assembly of claim 11 wherein:

20 the inner sleeve includes an elongate portion and a sleeve end cap, the outlet opening being disposed in the sleeve end cap.

13. The filter assembly of claim 12 wherein:

the elongate portion is cylindrical.

25 14. The filter assembly of claim 11 wherein:

the inner sleeve includes a base portion which extends generally perpendicular to and outwardly from the elongate portion.

15. The filter assembly of claim 14 further comprising:

30 an outer filter housing which generally surrounds the filter block;

wherein the outer filter housing and the base portion at least partially cooperate with one another to form a closed pressure vessel.

16. The filter assembly of claim 15 wherein:

5 the base portion includes an inlet valve for controlling the flow of fluid into the filter assembly.

17. The filter assembly of claim 15 wherein:

10 the first and second valves seal the filter assembly when the filter assembly is removed from the fluid treatment system to prevent fluid from escaping from the filter assembly.

18. The filter assembly of claim 11 further comprising:

an outer housing surrounding the filter block; and

15 an end plate secured to the outer housing to form a generally closed pressure vessel, the end plate having an inlet opening to allow fluid to enter the filter assembly.

19. A replaceable lamp assembly for a water treatment system comprising:

20 first and second end caps with respective inlet and outlet openings therein and a conduit extending therebetween;

a bulb assembly to irradiate water flowing from the inlet opening to the outlet opening; and

25 inlet and outlet seals mounted relative to the end caps to fluidly seal the lamp assembly relative to the water treatment system so that the lamp assembly is replaceable relative to the water treatment system.

20. The lamp assembly of claim 19 further comprising:

an enclosure which cooperates with the end caps to form a generally closed vessel about the UV bulb assembly and conduit.

21. The lamp assembly of claim 20 wherein:  
the second end cap further includes an outlet valve to prevent water from escaping through the second end cap when the lamp assembly is not installed in the water treatment system.

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22. The lamp assembly of claim 21 wherein:  
the outlet valve is a check ball valve.

23. The lamp assembly of claim 20 further including:  
a light pipe which allows light from within the lamp assembly to pass outside the outer housing.

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24. The lamp assembly of claim 20 further including:  
a secondary coil to power the lamp assembly.

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25. The lamp assembly of claim 24 wherein:  
the secondary coil is mounted adjacent the second end cap.

26. The lamp assembly of claim 20 further comprising:  
at least one conduit extending between the inlet and the outlet openings; and  
the bulb assembly irradiates the conduit to sterilize the water passing therethrough.

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27. The lamp assembly of claim 20 further including:  
a reflector mounted within the housing which reflects and focuses radiation from  
the bulb assembly on to the conduit.

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28. The lamp assembly of claim 20 wherein:  
the housing includes first and second elongate enclosures which secure relative  
to the first and second end caps to at least partially form the generally closed vessel.

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29. The lamp assembly of claim 20 wherein:  
the second end cap includes a mount which is capable of releasably mounting to the water treatment system.

5 30 The lamp assembly of claim 29 wherein:  
the mount includes at least one bayonet member for bayonet mounting with a water treatment system.

10 31. A water treatment system comprising:  
a base unit;  
a replaceable lamp assembly which mounts atop the base unit, the lamp assembly having a housing forming a generally closed pressure vessel with a bulb assembly therein, the housing including a first end cap having an inlet opening therein and a second end cap having an outlet opening therein;  
15 a replaceable filter assembly which mounts over the lamp assembly and upon the base unit; and  
first and second seals;  
wherein the first seal seals between the filter assembly and lamp assembly and the second seal seals between the lamp assembly and the base unit so that water  
20 passes from the inlet opening to the outlet opening without escaping the lamp assembly.

32. A lamp assembly comprising:  
a housing having an inlet opening and an outlet opening;  
25 a bulb assembly disposed within the housing to produce radiation;  
at least one conduit connecting between the inlet opening and the outlet opening to transport fluid through the housing; and  
a reflector assembly disposed within the housing;  
wherein the reflector assembly is configured to focus light emitted from the bulb  
30 assembly on to the at least one conduit to irradiate fluid passing through the conduit and to focus light away from the bulb assembly.

33. The lamp assembly of claim 32 wherein:  
the reflector assembly includes at least one reflector which has a portion of  
increasing radius of curvature and a portion of diminishing radius of curvature  
which cooperate to focus radiation away from the bulb assembly and on to the at  
least one conduit.
34. The lamp assembly of claim 31 wherein:  
the reflector assembly includes a pair of reflectors which cooperate to surround  
the at least one conduit.
35. The lamp assembly of claim 32 wherein:  
the reflectors are elongate and are generally omega shaped in cross-section  
having opposing generally curved central portions and a pair of opposing flanges which  
mate relative to one another.
36. The lamp assembly of 32 wherein:  
the reflector assembly includes at least one reflector having a generally planar  
portion and a curved portion, the curved portion focusing the emitted radiation  
upon the at least one conduit.
37. The lamp assembly of claim 32 further comprising:  
an end cap disposed at the lower portion of the lamp assembly.
38. The lamp assembly of claim 37 wherein:  
the end cap is generally cup-shaped and includes a self-sealing valve to prevent  
liquid from escaping from the end cap.
39. The lamp assembly of claim 38 wherein:  
the valve includes a check ball valve.



40. The lamp assembly of claim 32 further comprising:  
a top end cap which includes the inlet.

5 41. The lamp assembly of claim 40 wherein:  
the top end cap includes a dislodging pin extending away from the bulb  
assembly.

42. The lamp assembly of claim 32 wherein:  
10 a pair of elongate and curved enclosures capturing about the reflector assembly.

43. A bulb assembly for use in a lamp assembly to produce electromagnetic  
radiation, the bulb assembly comprising:  
a bulb having first and second ends with an intermediate portion extending  
15 therebetween, the bulb containing a gas, which may be energized to produce  
electromagnetic radiation, and containing solidified mercury when the bulb assembly is  
not energized;  
a first filament disposed in the first end and a second filament disposed in the  
second end; and  
20 a condensing element in contact with the intermediate portion of the bulb;  
wherein the condensing element may serve to cool and condense the mercury adjacent  
the condensing element when the bulb assembly is deenergized.

44. The bulb assembly of claim 43 wherein:  
25 the condensing element is an elastomeric O-ring.

45 The bulb assembly of claim 43 wherein:  
the bulb contains a neon-argon gas mixture containing at least 50% neon by  
weight.

46. The bulb assembly of claim 45 wherein:  
the bulb contains at least 95% neon by weight.

47. The bulb assembly of claim 46 wherein:

5 the bulb is generally U-shaped having a first elongate portion and a second elongate portion and a passageway extending therebetween with the first filament in the first elongate portion and the second filament in the second elongate portion.

48. A method for decreasing the startup time for a bulb assembly, the method  
10 including the steps of:

providing a bulb assembly including an elongate bulb having first and second ends with an intermediate portion extending therebetween, the first and second ends having respective first and second filaments and the bulb having an excitable gas and condensed mercury therein;

15 energizing the bulb assembly to create an electrical arc between the first and second filaments thereby exciting the gas and vaporizing the mercury with electromagnetic radiation being emitted by the bulb assembly;

deenergizing the bulb assembly; and

20 cooling the intermediate portion of the bulb and allowing the mercury to condense on the cooled intermediate portion between the first and second ends;

whereby the condensed mercury is captured in the arc path between the first and second filaments thereby decreasing the startup time for the bulb assembly upon a subsequent energization of the bulb assembly.

25 49. The method of claim 48 wherein:

the step of cooling the intermediate portion includes providing a condensing element which transports heat away from the intermediate portion of the bulb.

50. The method of claim 49 wherein:

30 the condensing element is in contact with a conduit carrying a relatively cool fluid.

51. The method of claim 50 wherein:  
the condensing element is an elastomeric member which also provides  
5 cushioning support between the bulb and the conduit.
52. The method of claim 48 wherein:  
the condensing element is metallic.
- 10 53. A point-of-use water treatment system for treating water, the system comprising:  
a base unit including electrical controls including a light intensity detector;  
a lamp assembly having an outer housing with a bulb assembly and a light pipe  
disposed at least partially therein, the bulb assembly emitting UV and visible light when  
the lamp assembly is energized and the light pipe containing a florescent dye which  
15 converts UV light to visible light;  
wherein the light intensity detector detects visible light emitted from the light pipe  
to determine the relative intensity of the UV light produced by the bulb assembly of the  
lamp assembly.
- 20 54. The system of claim 53 wherein:  
the intensity of the visible light emitted from the light pipe is generally directly  
proportional to the intensity of the UV light emitted by the bulb assembly.
55. The system of claim 54 wherein:  
25 the light pipe fluoresces and produces green light.
56. The system of claim 54 wherein:  
the florescent dye is generally green.
- 30 57. The system of claim 55 wherein:

the bulb assembly includes a bulb having first and second ends with first and second filaments therein and an intermediate portion extending between the first and second ends; and

the light pipe has a first filament face generally opposing the first filament of the bulb assembly and a second bulb face generally opposing the intermediate portion of the bulb;

whereby the visible light detected by visible light detector is primarily created by the fluorescing of the light pipe in response to UV light incident upon the bulb face.

10 58. The system of claim wherein:

the bulb assembly is generally U-shaped with the first and second filaments generally opposing the filament face of the light pipe.

59. The system of claim 58 wherein:

15 the second bulb face is contoured to generally focus on the center portion of the bulb.

60. The system of claim 56 wherein:

20 the light pipe has an emitting face juxtaposed the visible light detector; and  
the light pipe is configured to reflect and focus light incident upon the bulb face onto the emitting face.

61. The system of claim 53 wherein:

25 the lamp assembly further includes a reflector assembly disposed within the housing to reflect light from the bulb assembly onto water passing through the lamp assembly.

62. The system of claim 53 wherein:

the light pipe is made of plastic.

63. The system of claim 53 wherein:  
the plastic is acrylic.

64. The system of claim 53 wherein:

5 the second bulb face is contoured and positioned to focus upon the reflector assembly.

65. A method of detecting the intensity of UV light produced by a bulb assembly, the method comprising:

10 providing a bulb assembly having first and second ends and an intermediate portion extending therebetween, the first and second ends having filaments therein;

providing a light pipe having a florescent dye therein, the light pipe including a bulb face, a filament face and an emitting face, the light pipe being configured to direct light incident upon the bulb face toward the emitting face;

15 orientating the bulb face to primarily receive light from the intermediate portion of the bulb assembly;

exciting the bulb assembly to produce UV light and visible light;

directing UV light from the intermediate portion of the bulb assembly to strike the bulb face thereby causing the light pipe to fluoresce and visible light to be emitted from  
20 the emitting face of the light pipe while light from the at least one of the first and second filaments strikes the filament face; and

detecting the relative intensity of the visible light emitted from the emitting face of the light pipe.

25 66. The method of claim 65 wherein:

at least one of the bulb face and the emitting are polished to enhance light transmissivity.

67. The method of claim 66 wherein:

30 the florescent dye is green.

68. The method of claim 67 wherein:  
the intensity of the UV light output by the lamp assembly is directly proportional to the intensity of the light emitted by the emitting face.

5 69. The method of claim 68 wherein:  
the bulb face is focused toward the center of the lamp assembly.

70. The method of claim 68 wherein:  
the filament face is generally curved to mate about a cylindrical bulb.